$$-\text{CH2} - \overset{\displaystyle \text{R5}}{\underset{\displaystyle \text{Z1}}{\overset{|}{\underset{|}{\text{C}}}}} -$$
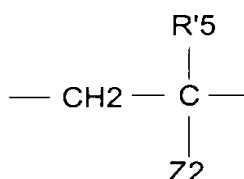
where R5 is H or CH3, and Z1 is COOH or CONH2 or CONHR1SO3, or

CONHR"1, R"1 is CH3;

- Hb has the following form:

$$-\text{CH2} - \overset{\displaystyle \text{R'5}}{\underset{\displaystyle \text{Z2}}{\overset{|}{\underset{|}{\text{C}}}}} -$$
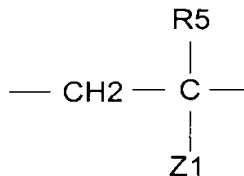
where R'5 is H or CH3 and Z2 is COOR7, COOR'1, CONR1R'1 or CONR1R7,

R7 being a non-ionic surfactant consisting of an alkyl polyoxyethylene chain, R1

is H or a C1-C30 alkyl, aryl or alkyl-aryl radical, and R'1 is a C9-C30 alkyl, aryl or

alkyl-aryl radical,

wherein said polymer has a molecular mass ranging between 500000 and
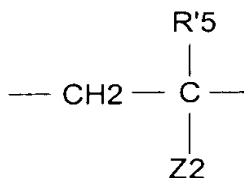
10^7 daltons.

3) (three times amended) A slurry as claimed in Claim 1, wherein the

polymer with hydrophilic (Hy) and hydrophobic (Hb) units is HMPAM, where R5

is H and Z1 is CONH2, R'5=CH3 and Z2 is COOR'1 with R'1=C9H19.

5) (amended) A slurry as claimed in claim 3, wherein the slurry further contains a

polymer selected from the group consisting of an unbranched polymer S1 and a

3

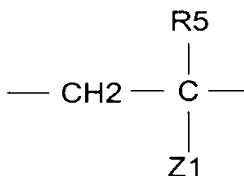branched polymer S2, wherein S1 and S2 are each made up of units of

$$
\begin{array}{c}
R5 \\
| \\
-CH_2 - C - \\
| \\
Z1
\end{array}
$$

C4 and

$$
\begin{array}{c}
R'5 \\
| \\
-CH_2 - C - \\
| \\
Z2
\end{array}
$$

with a statistical distribution, wherein R5 is H and Z1 is $CONH_2$, R'5=H and Z2 is
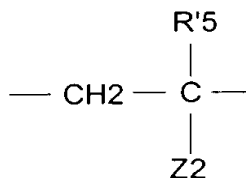
$C_6H_4SO_3H$.

8)   (amended) A cement slurry intended to be set in a wellbore through at

least one geologic formation having a certain permeability, characterized in that

it comprises cement, at least one mineral filler, water and a determined amount

of at least one polymer with hydrophilic (Hy) and hydrophobic (Hb) units in

C5 aqueous solution, said polymer having the following structure: —(Hb)—(Hy)——

with a statistical distribution, and:

-      Hy has the following form:

$$
\begin{array}{c}
R5 \\
| \\
-CH_2 - C - \\
| \\
Z1
\end{array}
$$

where R5 is H or CH_3, and Z1 is COOH or $CONH_2$ or $CONHR1SO_3$, or

CONHR"1, R"1 is CH_3;

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- Hb has the following form:

$$-CH_2 - \underset{\underset{Z2}{|}}{\overset{\overset{R'5}{|}}{C}} -$$

where R'5 is H or CH3 and Z2 is COOR7, COOR'1, CONR1R'1 or CONR1R7,
R7 being a non-ionic surfactant consisting of an alkyl polyoxyethylene chain, R1
is H or a C1-C30 alkyl, aryl or alkyl-aryl radical, and R' 1 is a C1-C30 alkyl, aryl
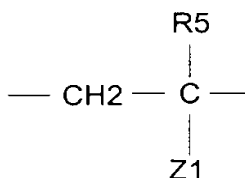or alkyl-aryl radical,

wherein the mineral filler consists of silica whose grain size ranges
between 5 and 200 μm and microsilica whose grain size ranges between 0.1
and 20 μm and a small water content of 30 cc for 144 g of solids (cement, silica
and microsilica).

Please add the following new Claims 11 - 19:

11)   A method for cementing a well bore drilled through at least one geological
formation having a certain permeability, said method comprising setting a
cement slurry in the well, where the cement slurry comprises cement, at least
one mineral filler, water and a determined amount of at least one polymer with
hydrophilic (Hy) and hydrophobic (Hb) units in aqueous solution, said polymer
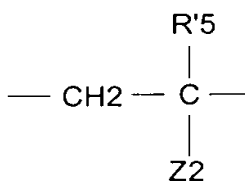having the following structure: —(Hb)—(Hy)—— with a statistical distribution,

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and:

- Hy has the following form:

$$— CH_2 — \underset{\underset{Z1}{|}}{\overset{\overset{R5}{|}}{C}} —$$

where R5 is H or CH3, and Z1 is COOH or CONH2 or CONHR1SO3, or

CONHR"1, R"1 is CH3;

- Hb has the following form:

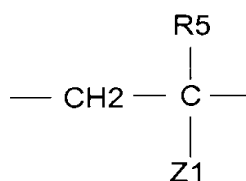$$— CH_2 — \underset{\underset{Z2}{|}}{\overset{\overset{R'5}{|}}{C}} —$$

where R'5 is H or CH3 and Z2 is COOR7, COOR'1, CONR1R'1 or CONR1R7,

R7 being a non-ionic surfactant consisting of an alkyl polyoxyethylene chain, R1

is H or a C1-C30 alkyl, aryl or alkyl-aryl radical, and R'1 is a C9-C30 alkyl, aryl or

alkyl-aryl radical.

12)   The method of claim 11, wherein the polymer has a proportion of

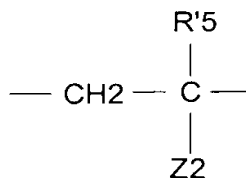hydrophobic units Hb ranging between 0.5 and 60 %.

13)   The method of Claim 11 wherein the polymer with hydrophilic (Hy) and

hydrophobic (Hb) units is HMPAM, where R5 is H and Z1 is CONH2, R'5=CH3

and Z2 is COOR'1 with R'1=C9H19.

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14) The method of Claim 11 wherein the mineral filler consists of silica with a grain size ranging between consisting of silica with grain size ranges between 5 and 200 μm, and microsilica with a grain size ranging between 0.1 and 20 μm.

15) The method of Claim 13, wherein the slurry further contains a polymer selected from the group consisting of an unbranched polymer S1 and a branched polymer S2, wherein S1 and S2 are each made up of units of
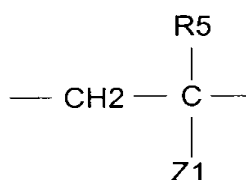
CC

$$-CH_2 - \overset{\displaystyle R5}{\underset{\displaystyle Z1}{C}} -$$

and

$$-CH_2 - \overset{\displaystyle R'5}{\underset{\displaystyle Z2}{C}} -$$

with a statistical distribution, wherein R5 is H and Z1 is CONH2, R'5=H and Z2 is C6H4SO3H.

16) The method of Claim 11 wherein said polymer has a molecular weight ranging between 500000 and 10^7 daltons.

17) A cement slurry intended to be set in a wellbore through at least one geologic formation having a certain permeability, characterized in that it
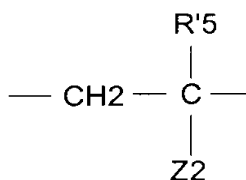
7

comprises cement, at least one mineral filler, water and a determined amount of at least one polymer with hydrophilic (Hy) and hydrophobic (Hb) units in aqueous solution, said polymer having the following structure: —(Hb)—-(Hy)—— with a statistical distribution, and:

- Hy has the following form:

$$
\begin{array}{c}
R5 \\
| \\
-\!\!-\ CH2-\!\!-\ C-\!\!- \\
| \\
Z1
\end{array}
$$

where R5 is H or CH3, and Z1 is COOH or CONH2 or CONHR1SO3, or

CONHR"1, R"1 is CH3;

- Hb has the following form:

$$
\begin{array}{c}
R'5 \\
| \\
-\!\!-\ CH2-\!\!-\ C-\!\!- \\
| \\
Z2
\end{array}
$$

where R'5 is H or CH3 and Z2 is COOR7, COOR'1, CONR1R'1 or CONR1R7,

R7 being a non-ionic surfactant consisting of an alkyl polyoxyethylene chain, R1 is H or a C1-C30 alkyl, aryl or alkyl-aryl radical, and R' 1 is a C1-C30 alkyl, aryl or alkyl-aryl radical,

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wherein the mineral filler consists of silica whose grain size ranges between 5 and 200 μm and microsilica whose grain size ranges between 0.1 and 20 μm and a small water content of 30 cc for 144 g of solids (cement, silica and microsilica).

18)   A slurry as claimed in Claim 17, wherein the polymer is Hb1 where R5 is H, Z1 is COOH, R'5 is H and Z2 is COOR'1 with R'1 being C4, comprising about 80% of (hy) units, and of molecular mass ranging between 10^4 and $5 \cdot 10^4$.

19)   A slurry as claimed in claim 18, wherein said polymer is Hb1 at a concentration ranging between 0.5 and 5 % by weight.